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OBJECTIVES AND SCOPE

The Information Technologist: An International Journal, of Information Communication Technology (ICT) is a referred Journal by Nigerians and foreign renowned Scholars who have distinguished themselves in the field of Library, Information, and Communication Technology (ICT).

Essentially the journal concerns itself with the pervasive impact and the changes in the basic character of library and information operations and services occasioned by the use of technology.

The journal deals mainly with the publication of the results of empirical research in the field of Library, Information Science Communication and Information Technology as they affect Developing Countries. The journal is also devoted to articles of high quality on the theoretical aspects of its area of concern. Book reviews, letters to the editor, news items and other brief communications are also welcome.

THE INFORMATION TECHNOLOGISTS:
An International Journal of ICT

Editorial

Our Journal, THE INFORMATION TECHNOLOGIST: An International Journal of Information and Communication Technology (ICT) has come of age. Like the previous issues, it has articles that examined some problems that plague the information profession inwardly. Some of the articles also explored the possibility of the profession of library and information technology reaching out beyond its present confines especially in developing countries of the world.

The editorial board members heartily congratulate our distinguished contributors whose articles appeared in this issue of the journal. We also appeal to our contributors whose articles have not been positively considered in this issue not to be discouraged. The journals insistence on high quality articles which is a function of the peer review mechanism has earned her acceptance the world over. It is the hope of the members of the editorial board that this standard will be maintained and the regularity of the appearance sustained.

Our lead article by Professor Olivia A.T. Frimpong Kwapong investigated the ways by which non-traditional applicants to University of Ghana appreciated their online learning engagements during the outbreak of COVID, challenges they faced and their suggestions for addressing the challenges.

In their study, Dr. James Ogom Odu, Dr. Benedict Igbor Ugbong and Dr. Augustine Odido Oshiomu examined Copyright legislation and the prevalence of Book Piracy in Cross River State, Nigeria.

The paper by Dr. Peter Appiahene, Dr. Yaw Marfo Missah, Dr. Rose-Mary Owusuaa Mensah Gyening, Dr. Daniel Adu-Gyamfi and Micheal Opoku proposed the usage of a model that combines a two-stage Data Envelopment Analysis (DEA) model, Multinomial Regression Analysis (MRA) and Decision Tree (DT) using C5.0 Algorithm, achieving favorable prediction rate of 88% and a good computational time compared to similar studies.

In their article, Dr. Pauline C. Iroeze, Dr. Francisca C. Mbagwu, Dr. Genevieve C. Opara and Ann Anthony Edem x-rayed the visually impaired training centers available in South- East Nigeria to find out the number of personnel trained within the period of 2015-2019 as well as the causative factors.

The study by Adamu Mahmud and Dr. Katamba Abubakar Saka investigated the influence of awareness, accessibility and use of ICT facilities on academic activities among engineering lecturers in university libraries in North Central Nigeria.

The paper by Dr. Pauline C. Iroeze, Dr. Judith Nse and Celestina Amadi investigated green libraries and environmental sustainability in tertiary institution libraries in Imo State, Nigeria.

In their article, Dr. Nnenna A. Obidike, Professor Austin-Jude C. Mole and Dr. Michael Chigozie Nwafor assessed the nature and level of the use of resources for electronic collection development (ECD) in three Nigerian university libraries.

The study by AbdulWaliy Oloruntobi Akinnubi and Sirajudeen Femi Bakrin examined the depth of awareness and use by undergraduate students of Fountain University of academic sites.

Dr. Percy Okae in his paper developed a robust system that can facilitate the works of administrators as they attend to students' housing needs.

Mujidat Adeola Bello, Rashidat Taiwo Adeleke and Fauziyah Nihinlolawa Adenekan in their study examined the awareness and usage of web 2.0 features in OPAC of Koha in Fountain University library, Osun State, Nigeria.

The paper by Mr. Benson O. Adogbeji, Dr. E. I. Achugbue and Professor Blessing Amina Akporhonor examined library staff ICT skills and influencing factors in the digitization of information resources in federal university libraries in Nigeria.

Finally, we once more sincerely appreciate our numerous contributors and subscribers and wish all our readers well.

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INFLUENCE OF AWARENESS, ACCESSIBILITY AND USE OF ICT FACILITIES ON ACADEMIC ACTIVITIES AMONG ENGINEERING LECTURERS IN UNIVERSITY LIBRARIES IN NORTH-CENTRAL, NIGERIA

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Abstract

The study investigated the influence of awareness, accessibility and use of ICT facilities on academic activities among engineering lecturers in university libraries in North Central Nigeria. The study was guided by four objectives with four corresponding research questions. The objectives of the study were to: identify the types of academic activities of Engineering lecturers, identify types of Information and Communication Technology (ICT) facilities that are available for teaching and research to engineering lecturers, challenges to awareness, accessibility and use of ICT facilities on academic activities of engineering lecturers in university libraries in North Central Nigeria. Survey research design method was adopted for the study. The target population was 502 engineering lecturers in five public universities in North Central Nigeria. The sample size of the population was 171 engineering lecturers drawn from population using Polonia 2013. Questionnaire and observation checklist were the instruments used for data collection. All the 171 copies of questionnaire were filled, returned and used for the analysis representing 100%. Descriptive statistical tool involving mean and standard deviation was used to analyze the data. The findings of the study revealed that teaching and learning were the popular academic activities and there was availability of ICT facilities such as computers, CD-ROM, photocopier, printers, digital cameras, OPAC, tablet device, scanner, projector, pen drive, social media output and WI-FI access were available in the universities under study. The study also discovered that the retrieval and dissemination of information was to support research activities of engineering lecturers. There was low level of accessibility to ICT facilities. The conclusion was that ICT facilities are instrumental to meeting the academic and research needs of Engineering Lecturers and they should be well trained

on the use of ICT facilities so as to facilitate their research activities. The study recommended among others the provision for training of library personnel and engineering lecturers to keep them abreast on the use of ICT facilities to support their academic activities as well as alternative sources of power supply to enable the use of ICT facilities by engineering lecturers in carrying out their research.

Key Words: Academic, activities, Accessibility,Awareness, Engineering, lecturers, University, libraries, Use, ICT

Introduction

Universities are established with set objectives which include provision of information resources for undergraduate and postgraduate research as well as faculty members' research and teaching. The libraries are established within the universities to support and implement the overall objectives of the universities. These objectives include provision of information resources for undergraduate and postgraduate research as well as support teaching and research of faculty members.

One singular objective of establishing university libraries is to provide information resources to support teaching and research (academic activities) of faculty members. For this objective to be achieved, university libraries provide variety of information resources (print and non-print). In this modern age, Information and Communication Technology (ICT) facilities are made available and use not only for information service delivery but also used for research and teaching activities, to conduct researches, and publications as well as conducting practical lessons.

Engineering lecturers as well as other academic staff members in any higher institution, especially universities are provided the opportunity to focus on the area of inquiry, develop a research program and later share the knowledge with students and others in the drive to develop professional skills and impact on a field and society as a whole.

Academic activities are essential and central part of learning and research by creating avenue for students and lecturers to interact in order to ensure or enhance knowledge acquisition. It provides opportunities for lecturers and students to visit academic libraries for scholarly and scientific information resources needed for the extraction of ideas, guides and principles to meet their information needs. Ahmad (2021) opined that lecturers and students are offered suggestion to patronize academic libraries to take advantages of numerous high quality information resources to enhance their knowledge and increase the quality of their writings (research).

Research outputs come in the form of journal articles, published books, chapters in books, technical reports, conference papers, seminar papers, edited works, workshop papers, thesis and other types of publications. These research outputs enable lecturers to earn recognition in academic circles nationally and internationally. University recognition and advancement of academic staff depend largely on the quantity and quality of research productivity. Research productivity through writings in the form of journal articles, chapters in book, seminar papers to mention but a few often serves as major role in attaining success in academic circle as it is related to promotion, tenure and salary of academic staff (Okonedo, 2015). Faculty members need to be aware of the available and existing ICT facilities such as Internet, projectors, computers, teleconferencing facilities to mention but a few for teaching, research, publication and seminar presentation to be effectively carried out using ICT facilities.

Accessibility means to get in touch with something. Accessibility to ICT facilities refers to locating of facilities such as the computers, Internet facilities, software

packages to mention but a few by engineering lecturers and faculty members in the universities for effective teaching, learning and research. Accessibility to information resources for research activities of engineering lecturers and other academics such e-books, e-journals, e-thses/dissertations, indexes and abstracts to mention but a few are made possible through ICT facilities.

ICT use refers to the consultation or process of integrating wide range of tools such as stand-alone computer instruction, CD ROM and other ICT facilities for the purpose of teaching, learning and research by faculty members and other members of a university community. However, studies have shown that in some universities where these facilities are available, they are not adequately used (Amusa and Atinmo, 2016).

The challenges encountered by engineering lecturers and other faculty members towards the use of ICT facilities for teaching and research purposes might not be unconnected with attitude of lecturers, the university management, gender, age and years of experience of the lecturers. The researcher expects that integration of awareness, accessibility and the use of ICT facilities could enhance academic activities among engineering lecturers.

Statement of the Research Problem

The importance of ICT use in the educational institution of university libraries cannot be overemphasised. It is undisputable that the benefits of ICT on those who embrace it are immense as it is the major channel of sourcing for and dissemination of information.

It has been observed that there is contradictory situation on the awareness, accessibility and use of ICT facilities in the university libraries especially among the faculty members for their teaching and research. From researcher's preliminary investigation, the ICT facilities in the libraries are very limited and the available facilities are not adequately used. In addition, some lecturers are phobic towards the use of ICT facilities in carrying out their academic activities. As such, this has negatively affected the academic activities of engineering lecturers. However, with adequate awareness, accessibility and use of ICT facilities, the university libraries would be able to deliver efficient and effective services that would enhance academic activities of their faculty members.

It is based on these observations that the researcher decided to investigate the influence of awareness, accessibility and use of ICT facilities on academic activities among engineering lecturers in university libraries in North-Central, Nigeria.

Aim and Objectives of the Study

The aim of this study investigated the influence of awareness, accessibility and use of ICT facilities on academic activities among engineering lecturers in university libraries in North-Central, Nigeria. The specific objectives of the study are to:

1. identify the types of academic activities of engineering lecturers in university libraries in North-Central, Nigeria
2. identify the types of Information and Communication Technology (ICT) facilities that are available for academic activities to engineering lecturers in the university libraries in North-Central, Nigeria
3. to determine the influence of the awareness, accessibility and use of ICT facilities on academic activities of engineering lecturers in university libraries in North-Central, Nigeria
4. determine the challenges to awareness, accessibility and use of ICT facilities on academic activities of engineering lecturers in university libraries in North-Central, Nigeria.

Research Questions

The following research questions guide the study:

1. What are the types of academic activities of engineering lecturers in university libraries in North-Central, Nigeria?
2. What types of Information and Communication Technology (ICT) facilities are available for activities to engineering lecturers in the university libraries in North-Central, Nigeria?
3. What is the influence of the awareness, accessibility and use of ICT facilities on academic activities of engineering lecturers in university libraries in North-Central, Nigeria?
4. What are the challenges to awareness, accessibility and use of ICT facilities on academic activities of engineering lecturers in university libraries in North-Central, Nigeria?

Review of Related Empirical Studies
Conceptual Framework/Model

The schema shows variables of awareness, accessibility and use of ICT to result to academic activities of engineering lecturers. With awareness of ICT through the use of social media, attending conferences, workshops and symposia couple with accessibility to computer laboratories, video, mobile phone and the use of ICT facilities to develop course materials; communication between academic staff and administrative support-all can lead to academic activities of engineering lecturers through effective teaching, learning and research.

Empirical Studies

Kpolovie and Awusaku (2016) investigated the attitude of lecturers towards the adoption of Information and Communication Technology, abbreviated as ICT, in teaching and research in federal and state-owned universities in Nigeria. Four research questions and null hypotheses were

respectively, answered and tested. A stratified sample of 400 lecturers (251 males and 149 females) was randomly drawn from one federal university and one state university. A factor analyzed 55 items instrument with high construct validity and three-factor loadings was used for data collection. The reliability of the instrument, using the Cronbach alpha method, showed reliability coefficients of 0.67, 0.62, and 0.51 for attitude, competence, and accessibility factor loadings, respectively. Data analysis was carried out with the use of independent samples t-test and One-way ANOVA for testing the hypotheses. Results revealed that gender and area of specialization have no significant difference in the attitude of lecturers towards ICT adoption in teaching and research. On years of experience, moderately and less experienced lecturers are more competent in the use of ICTs than their highly experienced counterparts. ICT facilities are significantly more accessible in Federal University (University of Port Harcourt) than the State University (Rivers State University of Science and Technology). University management should motivate and encourage lecturers to participate in ICT training programs, lecturers especially highly experienced should be well motivated to develop their ICT competence.

Information and Communication Technology is the science of production and utilization of computer equipment, subsystems, software and firmware for the automatic analysis, acquisition, storage, manipulation, management, movement, transformation, control, display, interchange, transmission and retrieval of data (quantitative and qualitative information) to most appropriately meet human needs.

Oyeniyi, Omotosho, Adedayo and Adeniran (2020) conducted a study to determine the availability, accessibility and use of electronic resources in two universities in South West Nigeria. The study was guided by three research

objectives and eight research questions. Survey method was used and sample size of 550 students was selected from the two universities. Questionnaire was the only instrument used for the study. Out of 550 copies of the questionnaire administered 535 (97.27%) completed questionnaire were returned. Result showed that very few students accessed the resources in university library. Most of the respondents were not aware of the e-resources in the university library while the available ones were not always accessible.

Owushi (2020) investigated the awareness and impact of electronic information resources on academic performance of law students. Five objectives and research questions were formulated and capture variables such as awareness, correlation and problems respectively. Correlational research method was used and purposive sampling technique was used to select 357 undergraduate law students of the Faculty of Law, University of Port-Harcourt, Nigeria. Questionnaire and individual student's CGPA was obtained for their academic performance (were used as instruments for data collection). The collected data was subjected to regression analysis. It was discovered that there was significant influence of awareness of e-resources on academic performance of undergraduate students. There was significant impact of the availability and awareness of e-resources on undergraduates' academic performance, poor Internet connectivity/inadequate bandwidth, inadequate ICT infrastructure, availability of the needed e-resources and uses for education, orientation were the major challenges to the use of e-resources.

Zubairu (2014) investigated the availability, accessibility and utilization of Information and Communication Technology (ICT) resources among lecturers in content delivery in Federal Colleges of Education in Nigeria. Eight research questions and two hypotheses were drawn to guide the study. Related literatures were reviewed after the conceptual framework based on the major variables of the study. A Survey research design was adopted to conduct the study. The population of the study comprises of all the lecturers in Federal Colleges of Education in Nigeria. They are (5,071). A sample size of (843) lecturers was used for the study; using cluster, simple random and proportional sampling techniques.

The findings of this study revealed that ICT resources are not available in Federal Colleges of Education in Nigeria. It was also revealed that ICT resources which were supposed to be used in content delivery by lecturers in FCE were not accessible and also lecturers were not exposed and proficient in using ICT resources. This study also confirmed that the major challenge facing lecturers in using ICT is the irregularity in power supply.

Methodology
Survey research was used and the population consisted of 502 engineering lecturers in five (5) public universities in North-Central, Nigeria. A sample size of 171 engineering lecturers was selected using proportionate stratified sampling technique coupled with Polonia 2013.Structured questionnaire and observation checklist were the data collection instruments used. Descriptive statistics was used in the analysis of data

Results and Discussion

Table 1: Types of Academic Activities of Engineering Lecturers

S/No		N	Mean	Std. Deviation	Rank
1	ICT Facilities are used for teaching and learning	171	3.60	.65	1
2	ICT Facilities helps in checking and assessing students' work	171	3.48	.67	2
3	I use ICT Facilities to interact with my students	171	3.39	.66	3
4	ICT Facilities helps in excellent research skills	171	3.37	.61	4
5	ICT Facilities helps in lecture planning.	171	3.32	.69	5
6	ICT Facilities are used for the presentation of instructional contents.	171	3.29	.70	6
7	ICT Facilities helps in invigilating examinations using digital camera	171	3.23	.71	7
8	I use ICT Facilities to give immediate feedback to my students	171	3.26	.66	8
9	ICT facilities assist me to collaborate with my students for learning purposes	171	3.16	.64	9
10	ICT Facilities are used for evaluation purposes.	171	3.11	.68	10
	Grand Mean	171	3.32	0.67	

Table 1 shows the mean and mean rank of academic activities engineering lecturers used ICT facilities for in university libraries. The findings indicated that ICT facilities are most used for teaching and learning activities with the highest mean of 3.60 and rank first. ICT facilities are also used by the respondents for checking and assessing students' work with the mean of 3.48 and rank second (2nd). Similarly, the respondents in this population used ICT facilities to interact with students, ICT facilities helps in excellent research skills, ICT facilities helps in lecture planning, and used ICT for presentation of instructional content which has the means of 3.39, 3.37, 3.32, and 3.29 and were ranked 3rd, 4th, 5th, and 6th, respectively.

The decision mean of 3.00 and above is considered as ICT facility which is used for academic activity, while the mean of below 3.00 indicate the ICT facilities that are not used for academic activity. Consequently, the grand mean of 3.32 shows that engineering lecturers used ICT facilities for academic activities.

The standard deviation of the engineering lecturers' perception of the use of ICT facilities for academic activities was between 0.62 - 0.70, while the standard deviation grand mean is 0.67 indicating that the standard deviation means in the data set were close to the group mean of the data set. This implies that there is no meaningful deviation in the responses of engineering lecturers.

Table 2: ICT Facilities Available for Academic Activities (Teaching and Research)

FACILITIES	FUT mx A	NA	Kwara A	NA	Uni Jos A	NA	Ilorin A	NA	Makurdi A	NA
Computer	√		√		√		√		√	
CD-ROM	√		√		√		√			
Photocopier	√		√		√					
Printers	√		√		√					
Digital Camera	√			-		-				-
OPAC	√		√		√		√		√	
Tablet Device	√			-		-				
Scanner	√		√		√		√		√	
Projector	√		√		√		√		√	
Pen drive		-	√		√					
Social Media output	√		√		√					-
WI-FI access	√		√		√		√		√	
	10	**2**	**9**	**3**	**10**	**2**	**9**	**3**	**8**	**4**

The checklist was used to determine the availability or otherwise of ICT Facilities in the Five selected Universities running Engineering Program. From the table it shows that almost all the ICT facilities were available in all the five selected Universities running engineering program. Most of the studied University Libraries do not possess pen drive and tablet device.

Table 3: Influence of Awareness, Accessibility and Use of ICT Facilities on Academic Activities of Engineering Lecturers

S/No		N	Mean	Std. Deviation	Decision
1	ICT enables the retrieval and dissemination of information to support research	171	3.64	.529	Agree
2	ICT enables easy access to information	171	3.22	.582	Agree
3	ICT enhances teaching and research	171	3.49	.588	Agree
4	ICT introduce better ways of teaching and learning	171	3.38	.575	Agree
5	ICT serves as agent of motivation for academic activities	171	3.19	.604	Agree
6	ICT has positive effect on behaviour and communication	171	3.08	.672	Agree
7	ICT provides models and simulations for effective practical teaching	171	3.27	.543	Agree
8	ICT helps in the acquisition of basic skills	171	3.31	.577	Agree
9	ICT enhances lecturers' training	171	3.23	.567	Agree
10	ICT helps in the seminars, symposium, colloquium and presentation	171	3.19	.553	Agree
	Grand Mean	**171**	**3.30**	**0.58**	**Agree**

Table 3 reveals that the ten (10) items were listed for engineering lecturers to respond on the influence of the awareness, accessibility and use of ICT facilities on academic activities of engineering lecturers in university libraries in North Central Nigeria. All the ten items produced high mean scores which were above the benchmark of 2.5. (below the mean of 2.50 is agree, while the mean of 2.50 and above is considered disagree that awareness, accessibility and use of ICT facilities influence academic activities). This indicates that lecturers agree that awareness, accessibility and use of ICT facilities influence academic activities among engineering lecturers. The items with higher means include item 1: Access to ICT facilities provide me better educational content(s) ($\bar{x}=3.64$; SD=0.53), item 3:

Access to ICT facilities has improved my research work ($\bar{x}$=3.49; SD=0.59), item 4: Access to ICT facilities aid in my routine administrative task ($\bar{x}$=3.38; SD=0.57). Similarly, item 7: Access to ICT facilities enables easy retrieval of information for my use ($\bar{x}$=3.27; SD=0.54). The findings of Table 4.5 show the grand mean of 3.30 indicating that engineering lecturers in this population agree that awareness, accessibility and use of ICT facilities influence their research and academic facilities. The average standard deviation of 0.58, indicating that the standard deviations spread in the data set are close to the group mean of the data set.

Table 4: Challenges to Awareness, Accessibility and Use of ICT Facilities

S/No	Statement	N	Mean	Std. Deviation	Decision
1	Limited accessibility leads to less research output	171	3.49	.645	Agreed
2	Poor funding has affected the level of research conducted	171	3.40	.609	Agreed
3	Poor network connection negatively affects access/use of ICT facilities	171	3.37	.630	Agreed
4	Erratic power supply is an obstacle to accessibility and use of ICT	171	3.36	.629	Agreed
5	Lack of effective ICT training affects research productivity	171	3.42	.631	Agreed
6	Limited technical support affects both teaching and research	171	3.36	.701	Agreed
7	Limited time affect the completion of research	171	3.28	.662	Agreed
8	Obsolete ICT facilities does not guarantee adequate academic activities	171	3.20	.772	Agreed
9	Lack of ICT knowledge led to poor conduct of teaching	171	3.08	.744	Agreed
10	Lack of adequate staff in library negatively affect service delivery	171	3.25	.669	Agreed
	Valid N (listwise)	171	3.32	0.67	Agreed

Table 4 reveals that the ten (10) items were listed for engineering lecturers to respond on the challenges to awareness, accessibility and use of ICT facilities on academic activities of engineering lecturers in university libraries in North Central Nigeria. All the ten items produced high mean scores which were above the benchmark of 2.50. (Below the mean of 2.50 is agree, while the mean of 2.50 and above is considered disagree that the challenges to awareness, accessibility and use of ICT facilities influence academic activities). This indicates that lecturers agree that challenges to awareness, accessibility and use of ICT facilities inhibited effective academic activities among engineering lecturers. The items with highest mean was the limited accessibility leads to less research output with ($\bar{x}$=3.49; SD=0.66), while the lowest mean score was discovered from lack of ICT knowledge which has led to poor conduct of teaching with mean score of 3.08 and STD of 0.744.

Discussion of Findings

In answering research question one, it was discovered that teaching and learning were the popular academic activities carried out by engineering lecturers. However, as teaching is carried out, so also the learning continues. This findings contradict that of Kpolovie and Awuasaku (2016) who reported that there was no significant difference in the attitude of lecturers towards ICT adoption in teaching and research.

The findings from research question two revealed there is availability of ICT facilities such as computers, CD-ROMs, photocopier, printers, digital cameras, OPAC, tablet device, scanner, projector, pen drive, social media output and WI-FI access in the selected universities. This show that most of the ICT facilities listed are available for academic activities among engineering lecturers in universities in North Central Nigeria. This does not agree with the findings of Zubairu (2014) who reported inadequate ICT resources for lecturers in Federal Colleges of Education in Nigeria.

The findings of research question three showed that engineering lecturers have high level of awareness, access and use of ICT facilities for their academic activities in terms of colloquium, training, effective teaching, retrieval and dissemination of information as well as serves as agent of

motivation. This findings contradicts that of Owushi (2020) who reported significant impact of the availability and awareness of e-resources on undergraduate students' academic performance.

The study revealed that the respondents agreed with all the factors inhibiting access and use of ICT facilities among engineering lecturers for their academic activities. This shows the use of ICT among the respondents is negatively affected. This is in line with the findings of Ani *et al.* (2016) in their studies that the integration of ICT into Nigerian education system is hampered with a lot of challenges which include: inadequate funding, poor management attitudes, poor Internet connectivity, erratic power supply, inadequate/lack of ICT facilities and digital divide.

Conclusion

It could be concluded that the awareness, accessibility and use of ICT facilities is very essential and instrumental in meeting the academic and research needs of engineering lecturers. There should be provision of modern ICT facilities and engineering lecturers including library personnel should be trained and re-trained on the use of ICT facilities to facilitate their research activities. The awareness, accessibility and use of ICT facilities by engineering lecturers in university libraries is faced with a lot of challenges such as inadequate ICT facilities, obsolete ICT facilities, ICT illiteracy, funding issue and erratic power supply. As such, urgent attention needs to be given on the aforementioned to enable engineering lecturers perform better in their academic activities.

Recommendations

Base on the findings, the following recommendations are hereby proffer:

1. The management of universities in North Central Nigeria should provide training programmes/sessions for engineering lecturers to keep them abreast on the use of ICT facilities for their academic activities.

2. Management of universities in North-Central, Nigeria should ensure that adequate ICT facilities are made available for engineering lecturers so as to support their academic activities.

3. The management of universities in North-Central, Nigeria should provide alternative sources of power supply to enable the use of ICT facilities by engineering lecturers in carrying out their research.

4. The management of universities in North-Central, Nigeria should make provision for funding to acquire more ICT facilities that would support the academic activities of engineering lecturers and library personnel in universities in North-Central, Nigeria respectively.

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